

Amendments to the Drawings:

Drawing Figures 1-3 are amended herewith in accordance with the Examiner's objections.

Included as attachments are replacement Sheets 1, 2 and 9, which include figures 1-3 and 11.

Replacement sheets 1-2 do not substantively change any existing item of the figures, but merely add the legend --Prior Art-- in accordance with the Examiner's objections to these figures. As such, markups showing these changes would not be helpful and are not included.

Drawing Figure 11 on Sheet 9 is proposed for amendment herein to correct formatting errors and thereby enhance readability. A markup of original drawing sheet 9, showing the proposed changes in red, is attached, together with a replacement sheet 9 that incorporates the changes.

Attachments:

Replacement Sheets 1-2 and 9 (Figures 1-3 and 11)

Marked copy of Original Sheet 9 showing changes in red

REMARKS

Amendments

No new matter is added by the present amendment. The amendment to the first paragraph of the application merely corrects matters of form, in particular putting all references to priority documents into a single sentence; other changes are merely stylistic, with no change in meaning, in view of the implications of claiming benefit under 35 USC 119 and 120.

Originally, Claims 1-45 were pending, including four independent Claims 1, 31, 37 and 41. After entry of the amendment set forth above, Claims 1-45 are pending, including nine independent Claims 1, 7, 10, 14, 31, 33, 37, 41 and 43. Claims 1-34 and 37 have been amended to avoid the inappropriate term "improving." Claims 31-34 have been amended to replace long means-clause identifications, using instead the element identifier associated with the means clause. All such amendments are self-supporting, and do not affect the scope or meaning of the claim, but only improve readability. Claims 7, 10, 14, 33 and 43 are otherwise substantially unchanged from their original scope, but have been rewritten in independent form, including all of the limitations of each claim from which they originally depended. Support for the perturbation-related amendments to Claims 1, 31, 37 and 41 may be found, for example, in Figure 7 and the associated text. Support for amendments identifying variables in Claims 8, 11, 16, 18, 20, 21 and 34 may be found, for example, at lines 8-14 on page 35 of the Applicant's specification. A replacement sheet 9 is attached that includes changes to correct obvious errors of a typographical nature, as may be seen in the marked copy of original drawing sheet 9 showing changes, which is also attached.

The replacement drawing sheets provided herewith have been amended precisely as indicated by the Examiner, adding the legend --PRIOR ART-- to each of Figures 1-3. Because no element of the drawing itself has been changed, a markup showing changes would not be helpful and is therefore not attached.

Claims Rejected Under 35 USC 112

In section 3 of the current Office Action, the Examiner rejects Claims 8-13, 16-24, and 34-35 as being indefinite for lack of term definition for certain equations. As presently amended, after entry of the amendments herein, these claims overcome these rejections at least in accordance with the Manual of Patent Examining Procedure (MPEP). Section 2173.02 of the MPEP states (underlining added for emphasis): "the essential inquiry pertaining to this requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of: (A) The content of the particular application disclosure; (B) The

teachings of the prior art; and (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made."

It is respectfully observed (1) that complex equations are constrained in their applicability by the very form of the relationships represented by the equation; (2) that each equation recited in a claim rejected by the Examiner includes substantial plain English limitations that further circumscribe the scope of the subject matter; and (3) that the Applicant's specification sets forth detailed explanations of the use of each equation that is recited in any of the claims rejected by the Examiner as indefinite. In view of these facts, and of the amendments herein, it is respectfully submitted that the scope of each of these claims, as presently amended, would be understood, when read in light of the specification, by those skilled in the art. As such, according to the MPEP, these claims all meet the requirements for definiteness established by 35 USC 112. MPEP section 2173.02 represents that *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1988) stands for the proposition that the test for definiteness is whether "those skilled in the art would understand what is claimed when the claim is read in the light of the specification." In view of the amendments herein and the foregoing, it is respectfully submitted that each of the rejected Claims 8-13, 16-24, and 34-35, as presently amended, satisfies the requirements of 35 USC 112 and thus overcomes these rejections.

Claims Not Rejected Over Harrison

In section 4 of the current Office Action, the Examiner rejects Claims 1-6, 25-32 and 37-42 as anticipated by Harrison (US Patent 6,434,366). Claims 7-24, 33-36 and 43-45 have not been rejected over the prior art, and are thus effectively deemed allowable except as to matters of form, including certain rejections over 35 USC 112 that are addressed hereinabove. These evidently allowable claims have therefore been rewritten to avoid dependency on a rejected base or intervening claim, and are accordingly believed to be in condition for immediate allowance. Nonetheless, remarks regarding the proper construction of these claims are warranted by the Examiner's rejection of Claims 2, 32 and 37-42 over Harrison.

Harrison does not teach, disclose or fairly suggest "perturbation vectors," nor does Harrison teach any vector that could reasonably be construed as a "perturbation vector," as that term is employed and might be understood in the context of the subject application. It is presumed that the Examiner is aware of these facts. Nonetheless, the Examiner has rejected Claims 2, 32 and 37-42, all of which incorporate one or more limitations that include a perturbation vector. In general, the Examiner supports his rejections over Harrison by pointing to specific portions of Harrison as disclosing relevant features of the rejected claims. However, the Examiner does not find it necessary to specifically state that Harrison teaches subject matter that can be construed as a perturbation vector.

The foregoing facts do not necessarily indicate error. However, it must be concluded either that the Examiner's original grounds for rejection were improper, or else that the Examiner has construed "perturbation vector" very broadly, such that it has so little effect as a limitation that it does not even warrant having specific subject matter in Harrison pointed out as anticipating it. It is possible to construe "perturbation vector," for example, as simply a vector that changes (and therefore perturbs) something else, such as another vector. Only such a broad interpretation would permit the Examiner to reject Claims 2, 32 and 37-42 over Harrison. If the Examiner's original grounds for rejection of these claims were inadvertently improper, then the Examiner is respectfully requested to withdraw those grounds for rejection, and to notify the Applicant so that the Applicant can amend the claims to avoid being unfairly prejudiced by the Examiner's action. Otherwise, it must be assumed that the Examiner construes "perturbation vector" extremely broadly, so that the term has no significant effect as a limitation.

The Examiner did not reject any of Claims 7-24, 33-36 and 43-45 over Harrison despite the broad construction applied to terms including "perturbation," such as "perturbation vector." The Applicant therefore endorses the Examiner's construction of such terms. "Perturbation" should accordingly be construed only according to its English meaning (except as to those claims in which such terms have been further defined by amendment).

Claims 7-24, 33-36 and 43-45 have been placed into condition for allowance in accordance with the Examiner's position, and in reliance on the correctness of the Examiner's construction. Remarks set forth above demonstrate that each of these claims has overcome any rejection for indefiniteness, and they have further been rewritten as necessary to avoid depending from any rejected claim. Accordingly, it is respectfully submitted that each of these Claims 7-24, 33-36 and 43-45, as presently amended, is in condition for immediate allowance. In these claims, "perturbation" conveys only its plain English meaning, and must not be further constrained by limitations from the context of the Applicant's specification.

Claims Rejected Over Harrison

In section 4 of the current Office Action, the Examiner rejects Claims 1-6, 25-32 and 37-42 as anticipated by Harrison (US Patent 6,434,366). It is respectfully submitted that these claims, as presently amended, overcome the Examiner's grounds for rejection.

Harrison fails to teach, disclose or suggest any feature that can reasonably be said to represent "a perturbation vector that determines, at the transmitter, time-alternating perturbations to the weight vector such that the feedback from the receiver need only reflect relative effectiveness of such alternatively perturbed weight vectors." Each of independent Claims 1, 31, 37 and 41, as presently amended, includes a limitation that is generally similar to the foregoing quoted recitation. As such, each of independent Claims 1, 31, 37 and 41 includes a limitation which is not disclosed or suggested in Harrison. At least for this reason, each of

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independent Claims 1, 31, 37 and 41, together with Claims 2-6, 25-30, 32, 36, 38-40 and 42 that each depend from one of said independent claims, is nonobvious and properly allowable over the cited prior art.

Conclusion

It is respectfully submitted that the remarks set forth above demonstrate that each and every claim, as presently pending, overcomes each grounds of rejection set forth by the Examiner. As such, the Examiner is respectfully requested to reconsider the application, to withdraw all previous rejections, and, barring the discovery of new grounds for rejection, to promptly issue a Notice of Allowance of all claims.

The Commissioner is authorized to construe this paper as including a petition to extend the period for response by the number of months necessary to make this paper timely filed. Fees or deficiencies required to cause the response to be complete and timely filed may be charged, and any overpayments should be credited, to our Deposit Account No. 50-0490.

Respectfully submitted,

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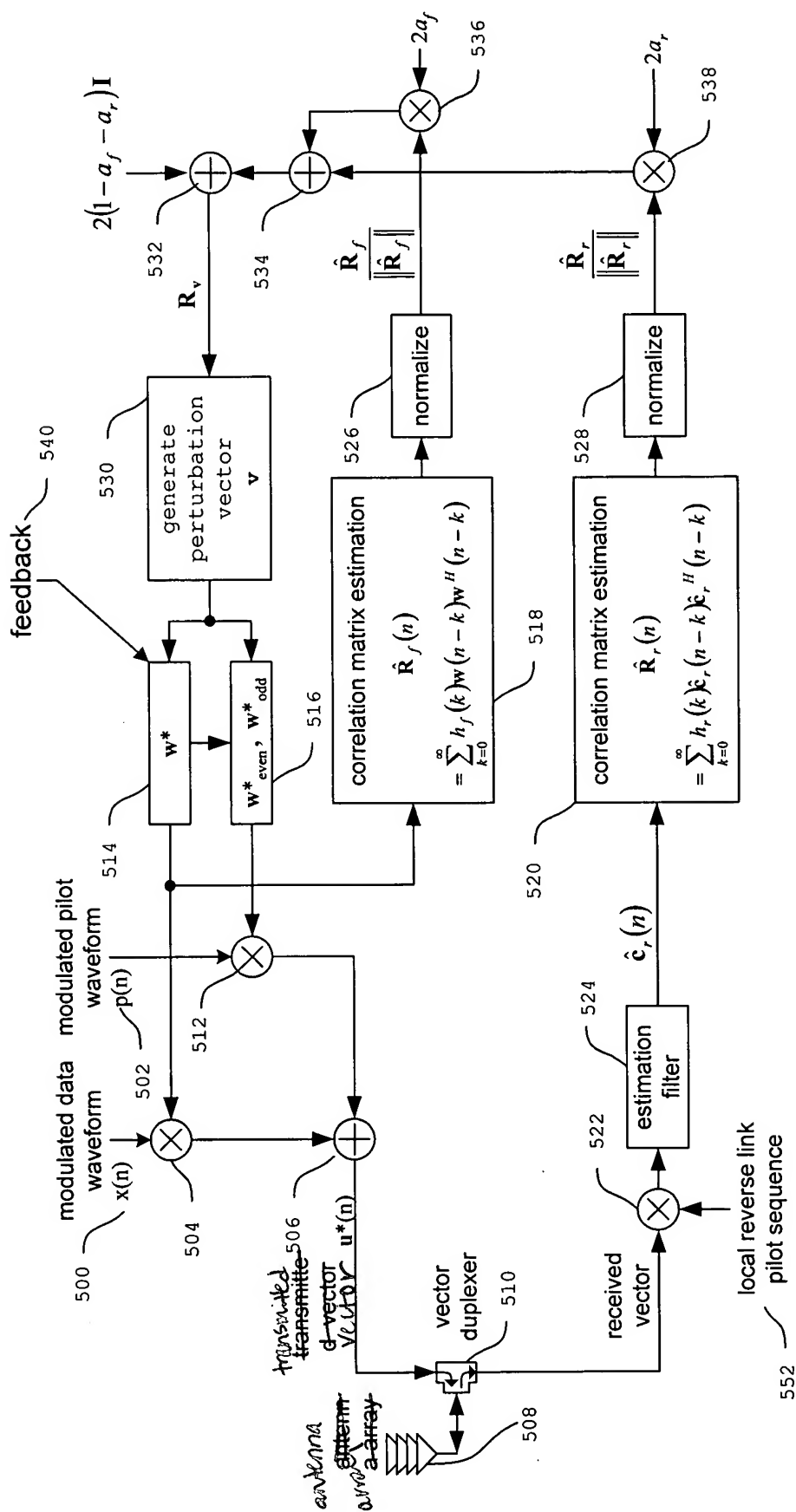


FIGURE 11